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EXAMINER

KISWANTO, NICHOLAS

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,363	Applicant(s) SUH ET AL.	
	Examiner NICHOLAS KISWANTO	Art Unit 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6, 10-29, 35, 37 and 40-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-6, 10-29, 35, 37, 40 and 41 is/are allowed.
- 6) ☒ Claim(s) 42-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2, 4, 6, 30, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishinakayama et al. (6,510,365), henceforth referred to as “Nishinakayama/365”.

As to claim 2, Nishinakayama/365 shows a method for transferring a substrate in a processing system 2 having at least one processing chamber (Fig. 1, 12B) coupled to a transfer chamber (Fig. 1, 8) housing a robot (Fig. 1, 16), the method comprising: teaching a robot to move to an exchange position defined in a processing system (col 2, line 38 – 41); monitoring a condition within the processing system by sensing a change in state of a portion of the processing system through which the robot must extend to reach the exchange position(col 2, line 52); determining the shift in exchange position based on the monitored

condition (col 2, line 49 - 50); and correcting motion of the robot to compensate for the shift in the exchange position (col 3, line 3 - 12).

Where a portion of the processing system through which the robot must extend to reach the exchange position is interpreted as any part of the system that the robot moves through, in its trajectory, to reach the exchange position.

As to claim 4, Nishinakayama/365 shows the method of claim 2, wherein the monitoring further comprises: sensing a change in state of the transfer chamber (col 13, line 60 - 64).

As to claim 6, Nishinakayama/365 shows the method of claim 2, wherein the monitoring further comprises: sensing a change in shift in centerline (col 13, line 26-50).

As to claim 30, Nishinakayama/365 shows a method for transferring a substrate in a processing system having at least a first processing chamber (Fig. 1, 12B) coupled to a transfer chamber (Fig. 1, 8) housing a robot (Fig. 1, 16), the method comprising: teaching the robot to move to an exchange position defined in the first processing chamber relative to a predefined reference point within the transfer chamber (col 2, line 38 - 41); detecting a shift in the exchange position (col 2, line 49 - 50); and correcting the taught robot motion to compensate for the shift in the exchange position (col 3, line 3 - 12).

As to claim 38, Nishinakayama/365 shows the method of claim 30, wherein the detecting further comprises: determining a change in a position of the reference point defined in the transfer chamber (col 3, line 52 – 65).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 5, 7-9, 31, 36, 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishinakayama/365, in view of Storm et al. (6,746,237), henceforth referred to as Storm/237.

As to claims 3 and 5, Nishinakayama/365 discloses the claimed invention as shown in paragraph regarding claim 2 above.

However, Nishinakayama/365 does not show a change in state that is an instruction by a controller to change the state of the at least one processing chamber, wherein the change in state is a change in temperature.

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Storm/237 shows a commonly well-known teaching of a processing system that shows a change in state that is an instruction by a controller to change the state of the at least one processing chamber (col 2, line 29-36).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Storm/237 with the invention of Nishinakayama/365 since changing states in a processing system is a commonly well-known method in the art.

As to claim 7, it would have further been obvious to one of ordinary skill in the art to place Storm/237's temperature sensor in at least one processing chamber since it is commonly well-known that each part of a processing system varies in temperature due to the different stages of a substrate making process.

As to claim 8, it would have further been obvious to one of ordinary skill in the art to place Storm/237's temperature sensor in a second processing chamber since it is commonly well-known that each part of a processing system varies in temperature due to the different stages of a substrate making process.

As to claim 9, it would have further been obvious to one of ordinary skill in the art to place Storm/237's temperature sensor in a processing chamber different than a processing chamber having the exchange position defined

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therein since it is commonly well-known that each part of a processing system varies in temperature due to the different stages of a substrate making process.

As to claim 31, it is further obvious that the temperature sensor of Storm/217 is sensing the temperature profile of the transfer chamber.

As to claim 36, it would have been further obvious to one of ordinary skill in the art to sense the temperature at a plurality of locations since different areas of the processing system have different temperatures due to the different stages of a substrate making process.

As to claim 42, Nishinakayama/365 shows a substrate processing system comprising: a transfer chamber (Fig. 1, 12B); a processing chamber (Fig. 1, 8) coupled to the transfer chamber; a robot (Fig. 1, 16) disposed in the transfer chamber and adapted to transfer substrates between the transfer chamber and the processing chamber; a change in position between the transfer chamber and the processing chamber resolved (col 2, line 49 - 50); and a controller coupled to the robot and adapted to provide instructions for correcting the robot's motions (col 3, line 3 - 12).

However, Nishinakayama/365 does not show sensing temperature of at least one component of the system and its resolution of the shift in exchange position does not correspond to sensed temperature since Nishinakayama/365

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does not show sensing temperature. Further, since Nishinakayama/365 does not show a temperature sensor, it does not show its controller receiving readings from said sensor.

Storm/217 shows the commonly well-known invention of a processing system with a temperature sensor (col 2, line 54).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365 with Storm/217's teaching of a temperature sensor in order to achieve the predictable result of claimed invention, since using a temperature sensor is a commonly well-known method in the art.

As to claim 43, it would have been further obvious to one of ordinary skill in the art to sense the temperature at the transfer chamber since different areas of the processing system have different temperatures due to the different stages of a substrate making process.

As to claim 44, it would have been further obvious to one of ordinary skill in the art to sense the temperature using a plurality of sensors since different areas of the processing system have different temperatures due to the different stages of a substrate making process.

As to claim 45, it would have been further obvious to one of ordinary skill in the art to sense the temperature at a processing chamber since different areas

of the processing system have different temperatures due to the different stages of a substrate making process.

5. Claims 15 – 20, and 32 - 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishinakayama/365 in view of Brown et al. (6,689,519), henceforth referred to as “Brown/519”.

As to claim 15, Nishinakayama/365 discloses the claimed invention as shown by the paragraph describing claim 2 above.

However, Nishinakayama/365 does not show the method resolving a change in the exchange position based on empirical data.

Brown/519 shows a substrate processing system that uses the commonly well-known method of using empirical data to alter a step in the process based on the empirical data (col 12, line 12 - 13).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365, where a change in the exchange position is resolved, with the teaching of Brown/519 in order to achieve the predictable result resolving the change in the exchange position based on empirical data.

As to claim 16, it would have been further obvious to one of ordinary skill in the art to use the change in position and orientation of the processing chamber

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relative to the transfer chamber due to thermal effects within the invention of Nishinakayama/365 as the data used in Brown/519's teaching of using empirical data to resolve a change in the exchange position.

As to claim 17, Nishinakayama/365 discloses the claimed invention as shown by the paragraph describing claim 2 above.

However, Nishinakayama/365 does not show the method resolving a change in the exchange position based on modeled data.

Brown/519 shows a substrate processing system that uses the commonly well-known method of using modeled data to alter a step in the process based on the modeled data (col 12, line 14).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365, where a change in the exchange position is resolved, with the teaching of Brown/519 in order to achieve the predictable result resolving the change in the exchange position based on modeled data.

As to claim 18, it would have been further obvious to one of ordinary skill in the art to use the change in position and orientation of the processing chamber relative to the transfer chamber due to thermal effects within the invention of Nishinakayama/365 as the data used in Brown/519's teaching of using modeled data to resolve a change in the exchange position.

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As to claim 19, Nishinakayama/365 discloses the claimed invention as shown by the paragraph describing claim 2 above.

However, Nishinakayama/365 does not show the method tracking time between state changes of at least one processing chamber.

Brown/519 shows a substrate processing system that uses the commonly well-known method of tracking time between state changes of at least one processing chamber (col 8, line 42 - 44).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365 with the teaching of Brown/519 in order to achieve the predictable result of tracking time between state changes of at least one processing chamber.

As to claim 20, it would have been further obvious to one of ordinary skill in the art to use the thermal expansion within the invention of Nishinakayama/365 as the state used in Brown/519's teaching of tracking time between state changes of at least one processing chamber.

As to claim 32, Nishinakayama/365 discloses the claimed invention as shown in paragraph describing claim 30 above.

However, Nishinakayama/365 does not show modeling a temperature profile of the transfer chamber based on a change in state of the first processing chamber.

Brown/519 shows a substrate processing system that uses the commonly well-known method of modeling a parameter of a processing system (col 12, line 14).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365, where a change in state of the first processing chamber results from temperature variations, with the teaching of Brown/519 in order to achieve the predictable result of modeling a temperature profile of the transfer chamber based on a change in state of the first processing chamber.

As to claim 33, Nishinakayama/365 discloses the claimed invention as shown in paragraph describing claim 30 above.

However, Nishinakayama/365 does not show modeling a temperature profile of the transfer chamber based on a change in state of a second processing chamber.

Brown/519 shows a substrate processing system that uses the commonly well-known method of modeling a parameter of a processing system (col 12, line 14).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365, where a change in state of a second processing chamber results from temperature variations, with the teaching of Brown/519 in order to achieve the predictable result of modeling a temperature

profile of the transfer chamber based on a change in state of a second processing chamber.

As to claim 34, Nishinakayama/365 discloses the claimed invention as shown in paragraph describing claim 30 above.

However, Nishinakayama/365 does not show determining a temperature profile of the transfer chamber based on empirical data.

Brown/519 shows a substrate processing system that uses the commonly well-known method of gathering empirical data of a parameter of a processing system (col 12, line 12 - 13).

It would have been obvious to one of ordinary skill in the art to combine the invention of Nishinakayama/365, where temperature variations affect the transfer chamber, with the teaching of Brown/519 in order to achieve the predictable result of determining a temperature profile of the transfer chamber based on empirical data.

Allowable Subject Matter

6. Claims 10-14, 21-29, 35, 37, 40 and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fail to teach or fairly suggest compensating for movement of processing chambers due to temperature differences, the placement of temperature sensors on a facet of a processing system between the transfer chamber and processing chamber.

Response to Arguments

7. Applicant's arguments filed 6/5/2008 have been fully considered but they are not persuasive. Applicant's arguments regarding claims 42 to 45 are not persuasive. Office maintains rejection since combination is a simple substitution of measuring temperature to derive position fluctuations for actual measuring of position metric.

8. Applicant's arguments concerning other claims are moot in view of amendments.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICHOLAS KISWANTO whose telephone number is (571)270-3269. The examiner can normally be reached on Monday - Friday, 9AM - 6PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571) 272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nicholas Kiswanto
September 15, 2008
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Supervisory Patent Examiner, Art Unit 3664